

**What is claimed is:**

1       1. A method for determining a maximum number of  
2 attempted retry operations when a read error occurs in an  
3 optical disk device, the method comprising the steps of:  
4            receiving an RF signal from a pickup of the optical  
5            disk device;  
6            detecting an envelope of the RF signal;  
7            asserting a defect signal when a level of the envelope  
8            is lower than a predetermined threshold;  
9            generating interrupt pulses during the assertion of the  
10           defect signal; and  
11           determining the maximum number of attempted retry  
12           operations according to the interrupt pulses.

1       2. The method as claimed in claim 1, wherein the  
2 interrupt pulses are periodically generated at a  
3 predetermined time interval during the assertion of the  
4 defect signal.

1       3. The method as claimed in claim 2, wherein the  
2 maximum number of attempted retry operations is determined  
3 according to a total number of the interrupt pulses within a  
4 read period of a data block causing the read error.

1       4. The method as claimed in claim 3, wherein one of a  
2 first, second and third values is selected as the maximum  
3 respectively when the total number of the interrupt pulses  
4 is larger than a first threshold, between the first and  
5 second threshold, and lower than the second threshold.

1       5. The method as claimed in claim 4, wherein the  
2 first threshold is larger than the second threshold, the  
3 first value is smaller than the second value and the second  
4 value is smaller than the third value.

1       6. The method as claimed in claim 1, wherein the  
2 interrupt pulses are generated only upon level transitions  
3 in the defect signal.

1       7. The method as claimed in claim 6, wherein the  
2 maximum of times the retry operation is attempted is  
3 determined according to a total length of periods between  
4 pairs of odd and even-numbered pulses, within a read period  
5 of a data block causing the read error.

1       8. The method as claimed in claim 7, wherein one of a  
2 first, second and third values is selected as the maximum  
3 respectively when the total length of the periods is larger  
4 than a first threshold, between the first and second  
5 threshold, and lower than the second threshold.

1       9. The method as claimed in claim 8, wherein the  
2 first threshold is larger than the second threshold, the  
3 first value is smaller than the second value and the second  
4 value is smaller than the third value.

1       10. An apparatus for determining a maximum number of  
2 attempted retry operations when a read error occurs in an  
3 optical disk device, the apparatus comprising:

4       an RF signal processor for both receiving and  
5               amplifying an RF signal from a pickup of the  
6               optical disk device;  
7       an envelope detector for outputting an envelope of the  
8               RF signal according to the results of the RF  
9               signal processor;  
10      an defect detector for both asserting a defect signal  
11               when a level of the envelope is lower than a  
12               predetermined threshold and for generating  
13               interrupt pulses during the assertion of the  
14               defect signal, wherein the defect detector  
15               receives the output of the envelop detector; and  
16      a system controller for determining the maximum number  
17               of attempted retry operations according to the  
18               interrupt pulses, wherein the system controller  
19               receives the output of the defect detector.

1       11. The apparatus as claimed in claim 10, wherein the  
2       interrupt pulses are periodically generated at a  
3       predetermined time interval during the assertion of the  
4       defect signal and are received by the defect detector.

1       12. The apparatus as claimed in claim 11, wherein the  
2       system controller determine the maximum number of attempted  
3       retry operations according to a total number of the  
4       interrupt pulses within a read period of a data block  
5       causing the read error.

1       13. The apparatus as claimed in claim 12, wherein one  
2       of a first, second and third values is selected as the  
3       maximum respectively when the total number of the interrupt

4       pulses is larger than a first threshold, between the first  
5       and second threshold, and lower than the second threshold.

1           14. The apparatus as claimed in claim 13, wherein the  
2       first threshold is larger than the second threshold, the  
3       first value is smaller than the second value and the second  
4       value is smaller than the third value.

1           15. The apparatus as claimed in claim 10, wherein the  
2       interrupt pulses are generated only upon level transitions  
3       of the defect signal.

1           16. The apparatus as claimed in claim 15, wherein the  
2       system controller determines the maximum of times the retry  
3       operation is attempted according to a total length of  
4       periods between pairs of odd and even-numbered pulses,  
5       within a read period of a data block causing the read error.

1           17. The apparatus as claimed in claim 16, wherein one  
2       of a first, second and third values is selected as the  
3       maximum respectively when the total length of the periods is  
4       larger than a first threshold, between the first and second  
5       threshold, and lower than the second threshold.

1           18. The method as claimed in claim 17, wherein the  
2       first threshold is larger than the second threshold, the  
3       first value is smaller than the second value and the second  
4       value is smaller than the third value.